2013 Year In Review

DELTA STEWARDSHIP COUNCIL

Coequal goals *means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.*

— CA Water Code 85054

The year 2013 was a transitional one for the Delta Stewardship Council, marking the completion of a long-term sustainable management plan for the Delta in May and approval of its regulatory policies by the Office of Administrative Law in August. Over the past three months, the Council has begun the transformation from a primarily planning agency to one dedicated to oversight and coordination in accordance with the Delta Plan.

In creating the Council, the Legislature recognized the need for an independent agency that can keep the focus on the long view, knitting existing statutes and mandates into a comprehensive management blueprint. The Delta Plan draws on lessons of the past, requires and encourages sustainable actions now, and lays a strong foundation for future projects and programs that will improve statewide water supply reliability, provide a vibrant and healthy ecosystem, and preserve, protect and enhance the rural, agricultural and recreational characteristics of the Delta.

Many agencies and individuals have been involved in developing the Plan and also will be involved in implementing it. The Plan's 14 regulatory policies and 73 recommendations are intended to address water and environmental problems for years to come, and we will revisit them at least every five years to ensure that the path we chart is both the right one and the path we're on.

We'll measure success through specific performance indicators, many of which are included in the Plan itself. Next year's annual report – the first that will track a full year of implementation – will be based on these.

Science played a prominent role in the development of the Plan and will, too, in its implementation. More than a buzzword, adaptive management must be a part of every project, ensuring that what we do accomplishes what we intended it to and, in turn, leads to achievement of the broader coequal goals.

In addition to finishing the Delta Plan, a prime accomplishment this year was completion of the Delta Science Plan. Also developed collaboratively with agencies and individuals, this science blueprint will help integrate the best available scientific knowledge into day-to-day management decision making.

The year ahead promises to be challenging: overall dry conditions this winter foretell the continuation of another drought cycle. It's hard enough meeting the coequal goals of water supply reliability and ecosystem protection when reservoir levels are high; it is even more difficult – and more important – when they are low.

Chris Knopp, Executive Officer

The Delta Reform Act

The Delta formed by the Sacramento and San Joaquin rivers is a network of channels and sunken "islands" that cover—together with Suisun Marsh—about 1,300 square miles. Laid over those islands and channels is the infrastructure of a 21st Century economy: water supply conduits; major arteries of the state's electrical grid; natural gas fields, storage facilities, and pipelines; highways and railways; and shipping channels, all surrounded by an increasingly urban landscape. Water from the vast Delta watershed, spanning over 45,000 square miles (30 million acres), fuels both local economies and those in export areas hundreds of miles away

Today the Delta is many things to many people, and is universally regarded in "crisis" because Californians have not yet been able to find balance in the tradeoffs among competing demands for its resources.

Passage in 2009 of the Delta Reform Act established as State policy the coequal goals of providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem both in a manner that protects and enhances the unique cultural, recreational, natural resource and agricultural values of the Delta as an evolving place. It also established as State policy to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency.

To oversee and enforce these policies, the Act created the Delta Stewardship Council and directed it to, among other things, develop and implement a comprehensive long-term sustainable management plan for the Delta. The Act set forth several specific objectives for the Plan and, recognizing the unique missions of several other state, regional and local agencies, directed various planning efforts to assist development of the Delta Plan and ensured the consistency of future actions in the Delta through an enforceable process for what are known as "covered actions."

The Delta Stewardship Council

The Delta Plan, adopted in May 2013 and in effect Sept. 1, is the principal document called for in the Delta Reform Act, which provided specific direction for many of the Plan's goals and objectives. It is a comprehensive management plan that uses 14 regulatory policies and 73 non-regulatory recommendations for actions by other state and local agencies to guide improvement of statewide water supply reliability, provide a vibrant and healthy ecosystem, and preserve, protect and enhance the rural, agricultural and recreational characteristics of the Delta.

Three years in the making, the Delta Plan is the product of 64 regular Council meetings, three meetings about early actions, 12 workshops about Delta Plan topics, seven EIR scoping meetings, eight EIR hearings, and dozens of other meetings with Boards of Supervisors, Delta civic groups, or other stakeholders about the plan. More than 160 different speakers addressed the Council during these meetings commonly speaking multiple times on separate points they raised. The drafts of the Delta Plan, three draft PEIR volumes, and the rulemaking package elicited more than 13,000 specific comments, all of which were addressed through the process.

The Delta Reform Act provided the Council with two main tools to ensure compliance with the Delta Plan: appellate regulatory authority over what are known as "covered actions" and a requirement to convene and coordinate Delta Plan implementation

Members of the Delta Stewardship Council meet in their inaugural session, April 1, 2010

Council members (l-r) Henry Nordhoff, Gloria Gray, Randy Fiorini and Phil Isenberg.

"If we want our society to prosper, and our environment to be protected, everyone in California needs to be far more prudent in the ways we use water."

— Phil Isenberg

through a committee of agencies responsible for implementing its various actions and recommendations.

Covered actions are plans, programs or projects that are undertaken in whole or in part in the Delta. The Delta Reform Act requires that local and state public agencies certify that these "covered actions" are consistent with the regulatory policies in the Delta Plan, and submit that certification to the Council. The Act also requires the Council to act as an appellate body to hear potential appeals of those certifications. The Council has developed a process for certifications and possible appeals, and created a training program about the process for state and local agencies. The Council has also created an online forms system to assist agencies with filing their certifications of consistency. This system also assists those wishing to file an appeal. In addition, the Council encourages jurisdictions with potential covered actions to consult with Council staff early in the process to discuss the potential for a covered action, its consistency with the various provisions of the Delta Plan and the required supporting documentation.

Following completion of the Delta Plan in May, the Council selected Vice Chair Randy Fiorini as Chair of the implementation committee. Additionally, Governor Jerry Brown appointed a coordinator for the committee in August 2013. Outreach meetings with various federal and state leaders were conducted throughout 2013 to pursue support for the Delta Plan and acquire commitments to participate on the committee. At its December 2013 meeting, the Council approved a charge to guide the committee and focus its development. Meetings of the committee will be scheduled and conducted in 2014.

Council Roles and the Delta Plan

COORDINATE
- Develop, implement, and update Delta Plan
- Establish and oversee Interagency Implementation Committee

ENSURE CONSISTENCY
- Determine consistency of covered actions upon appeal
- Advise local and regional agencies on consistency with Delta Plan

INFORM

Adaptive management of the Delta Plan: Develop and use best available science and information to inform decision making in the Delta

COMMENT

Review and comment on environmental impact reports and other Delta-related programs and projects

ENSURE ACCOUNTABILITY
- Hold hearings
- Request reports
- Track performance measures

BDCP OVERSIGHT
- Serve as responsible agency on EIR
- Independent appellate role

Water Supply Reliability

Photo courtesy West Basin MWD

West Basin Municipal Water District water recycling facility in El Segundo, CA

The Delta Plan lays out four core strategies to meet the first of the state's coequal goals - providing a more reliable statewide water supply for California.

- Increase water conservation and expand local and regional supplies
- Improve groundwater management
- Improve conveyance and expand storage
- Improve water management information

These core strategies form the basis of the two policies and 19 recommendations in the Plan. These strategies — along with many other policies and recommendations of the Delta Plan — are reinforced through inclusion in the California Water Action Plan, completed in December by the Secretaries of Natural Resources, Food and Agriculture and Environmental Protection.

Since the Delta Plan took effect in September, the following accomplishments directly addressing specific recommendations have occurred:

Increase Water Storage **(WR R13-14)** – At its November 2013 meeting, the Council endorsed the first in a series of issue papers designed to build support for recommendations moving long-standing issues to resolution. The paper, authored by Council Vice Chair Randy Fiorini, acknowledges that the studies targeted by WR R13 are progressing but behind schedule and questions whether it's time to stop waiting for the large 'perfect' water storage solution, and look at smaller regional options too. The paper proposes six specific recommendations in keeping with the Council's previously adopted Delta Plan.

Most recently, the Association of California Water Agencies has begun collaborating with the California Water Commission, Department of Water Resources, the Delta Stewardship Council and other state and federal agencies to survey the water community regarding near-term surface water and groundwater storage project opportunities. This survey is consistent with a recommendation in the Delta Plan **(WR R14**), and the data collected through this effort will be used specifically to inform ongoing discussions on improved water management and public financing of water projects and management activities in California.

California Water Plan (Department of Water Resources) **(WR R18)** – The Council worked with DWR and other state agencies to shape the California Water Plan Update 2013. Council staff met with DWR several times starting in spring 2013 to help craft language incorporating the key components of the Delta Reform

Act, the coequal goals, the role of the Delta Stewardship Council and the Delta Plan. The Delta-oriented objectives for the Water Plan Update encourage implementing Integrated Water Management actions incorporating recommendations from the Delta Plan.

The Delta Reform Act established state policy to reduce reliance on the Delta in meeting the state's future water supply needs, and the Delta Plan **(WR P1)** requires those who take water from, transfer water through, or use water in the Delta to describe and certify that they are implementing all feasible efforts to use water efficiently and to develop additional local and regional water supplies.

Examples of successful local and regional projects include:

City of Stockton – Delta Water Supply Project is a new water intake facility, transmission pipelines, and a water treatment plant to provide the City of Stockton with a new supplemental water supply. This project is a conjunctive-use program that will integrate surface water and groundwater supply to protect and restore groundwater resources and to provide adequate water supply to accommodate planned growth in Stockton.

West Basin Municipal Water District (Carson) – Water Reliability 2020 is the District's program to reduce dependence on water imported from the Delta and Colorado River to coastal Los Angeles County in half – from 66 percent to 33 percent by the year 2020. The District intends to accomplish this by more than doubling its effort to recycle water, double its conservation efforts, increase youth conservation and water education programs about conservation and begin an ocean-water desalination program. Thus far, as much as 14% of the region's dependence on imported water has been shifted to recycled water and conservation.

Water Desalination (Carlsbad) – 2013 marked the first year of construction of a 50 million-gallon-per-day seawater desalination project that will supply the San Diego region with approximately seven percent of its drinking water needs. The project, being developed by Poseidon Resources Corp. and providing water to the San Diego County Water Authority, will be the first large scale desalination plant on the West Coast and the largest of its kind in the Western Hemisphere.

South San Joaquin Irrigation District — The District in 2013 initiated a feasibility study to consider replacing canals serving 72,000 acres of farmland with a pressurized delivery system. A similar project was completed two years ago. Instead of taking longer to flood irrigate or not having enough water, the pressurized system cut flood irrigation time in half as well as eliminated seepage. The district also has made a three-year investment of $4.5 million to help implement more efficient farming practices.

Bay-Delta Conservation Plan

The Delta Plan acknowledges that the current method of moving water across the Delta to pumping plants near Tracy is unreliable and unsustainable for the long-term health of the Delta ecosystem. Fish predation and mortality at the export pumps could be reduced if the diversion points of the State and federal water projects in the Delta were moved or modified. Risks to a reliable source of fresh water conveyed through the Delta could be reduced through conveyance alternatives that could provide multiple diversion locations in the Delta.

The Bay Delta Conservation Plan (BDCP) process has been developing alternatives and analyzing them for the past seven years. A major milestone was marked toward the end of 2013 with the release for public review of both a draft Plan intended to meet the requirements of the state's Natural Communities Conservation Planning Act and the federal Habitat Conservation Act, and an Environmental Impact Report.

Should the BDCP successfully meet the requirements of the NCCP, state law requires it to be incorporated into the Delta Plan **(WR R12).**

Photo courtesy of Department of Water Resources

Debbie McEwan and Mike Trouchon, DWR Environmental Scientists, doing research in the Suisun.

Ecosystem Restoration

The second coequal goal is to protect, restore and enhance the Delta Ecosystem. The Delta Plan contains policies and recommendations for restoring the Delta ecosystem organized into five core strategies:

- Create more natural functional flows
- Restore habitat
- Improve water quality to protect the ecosystem
- Prevent introduction of and manage nonnative species impacts
- Improve hatcheries and harvest management

These core strategies form the basis of the five policies and nine recommendations and are intended to successfully establish a resilient, functioning estuary and surrounding terrestrial landscape that is capable of supporting viable populations of native resident and migratory species with diverse and biologically appropriate habitats, functional corridors, and ecosystem processes.

Successful accomplishments involving the Council include:

Prioritize and Implement Projects that Restore Delta Habitat at appropriate Elevation (ER R2 and ER P2) — DSC staff has supported the Delta Conservancy in convening the Delta Restoration Network to coordinate the implementation, performance tracking, and adaptive management of habitat restoration in the Delta. One of the key performance measures is acres of restored habitat. With support from Network partners, the Delta Conservancy obtained funding to expand the coverage of the web-based wetland project tracking database EcoAtlas to

include the Delta. EcoAtlas will provide restoration habitat acreage totals by habitat type, as well as publicly accessible information about the project stage (planning, ongoing, or complete) and will contain links to related documents, including monitoring reports.

DSC staff also has been working to ensure that habitat is restored in a manner consistent with the California Department of Fish and Wildlife's (DFW) Draft Ecosystem Restoration Program Conservation Strategy.

Notable restoration projects underway:

The Dutch Slough Tidal Marsh Restoration Project cleared its initial hurdle when an environmental group convinced the City of Oakley to annex land that previously had been planned for development by the county and designate it as open space. The state Department of Water Resources (DWR) then purchased the properties. The 1,178-acre project went through a complex design process to maximize ecological benefits of the restoration. More than half of the project will be tidal marsh to benefit native fishes; the rest will include open water and upland, including 120 acres of pasture for Swainson's hawk foraging, and 40 acres of riparian woodland. All permits are expected to be received by Spring 2014 so that the project can start construction in Summer 2014.

The State and Federal Contractors Water Agency certified the final environmental impact report for the **Lower Yolo Restoration Project** in 2013, and intends to break ground in 2014. SFCWA initiated early consultation with DSC in 2013 in preparation for certifying the consistency of the project with the Delta Plan in 2014. Nearly half of the 3,423-acre site will be devoted to wetland restoration, as well as 50 acres of riparian enhancement. The project is aimed partly to fulfill the 8,000-acre tidal restoration obligations of the DWR under the federal biological opinions regarding delta smelt and salmonids.

DWR completed its environmental documentation for the **North Delta Flood Control and Ecosystem Restoration Project**, which includes the **McCormack Williamson Tract (MWT)**, but needs funding for construction. DWR is expected to provide funding for the 1,595-acre MWT project through one of its habitat restoration programs; a portion of the funding may come from the Fish Restoration Program Agreement (FRPA) between the DWR and DFW in 2013.

DFW completed the environmental review process for the **Lindsey Slough Tidal Marsh Wetland Enhancement Project** in July 2013. The 927-acre project will include 165 acres of tidal marsh restoration, as well as enhancement of existing marsh habitat.

Carbon Farming

Carbon farming in the Delta may be a viable way to help restore eroded soils on Delta islands **(DP R7)** , reduce pressures on fragile levees and sequester carbon to combat climate change. It is anticipated that as a carbon market emerges in California, Delta farmers may be able to profit from farming wetlands and sequestering carbon in the west Delta.

Carbon Sequestration and Wetland Farming Demonstration Project – DWR is conducting large-scale experiments with subsidence reversal by growing tules, the famed Delta bulrushes, which helps the land surface rise at a rate of up to two inches per year. If DWR is successful in working with the California Air Resource Board and other partners to develop a viable protocol, funds generated by carbon emission auctions would become available to pay farmers to grow wetlands, which capture carbon and sequester it in the soil.

In November 2013, the DWR's Delta Levee Program approved funding for Reclamation District 341 to carry out the **Sherman Island Whale's Mouth Wetland Restoration Project**. This project comprises a total of 877 acres within which a total of 600 acres of emergent wetlands will be restored through a combination of reestablishment and rehabilitation.

Aerial image of repair work being done on the Jones Tract Levee break in June 2004.

Photo courtesy of DWR

Delta as a Place and Risk Reduction

The Delta Reform Act requires that the coequal goals for the Delta be accomplished in a manner that protects and enhances the unique characteristics of an evolving Delta. The Delta Plan contains five core strategies for protecting and enhancing the Delta:

- Designate the Delta as a special place worthy of national and state attention
- Plan to protect the Delta's lands and communities
- Maintain Delta agriculture as a primary land use, food source, economic sector, and a way of life
- Encourage recreation and tourism that allow visitors to enjoy and appreciate the Delta, and contribute to its economy
- Sustain a vital Delta economy that includes a mix of agriculture, tourism, recreation, commercial and other industries, and vital components of state and regional infrastructure

Protecting the Delta as a place also depends on seven core strategies to reduce risk to people, property, and State interests in the Delta.

- Improve emergency preparedness and response
- Finance and implement flood management activities
- Prioritize flood management investment
- Improve residential flood protection
- Protect and expand floodways, floodplains, bypasses
- Integrate Delta levees and ecosystem function
- Limit liability

Specific accomplishments of the Council:

Levee Prioritization (RR P1) – DSC staff has been working with DWR on developing an Interagency Agreement (IA) to fund the tasks necessary to make recommendations for prioritizing levees to receive State funding. A final scope of work has been accepted by both agencies and is now being prepared for submission to the Department of General Services (DGS). This agreement should be effective in early 2014.

Incorporating Plans from Sister Agencies into the Delta Plan — The Council's effort to protect and enhance the Delta as a place involves close coordination with its sister state agencies, including incorporation of and coordination with plans developed by the Delta Protection Commission (DPC), California Department of Parks and Recreation, and the Central Valley Flood Protection Board. The DPC produced an *Economic Sustainability Plan* for the Delta, and two thirds of its recommendations were incorporated directly into Chapter 5 of the Delta Plan. The *Economic Sustainability Plan* was informed by the California Department

of Parks and Recreation's *Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh*. Many of the Delta Plan's flood risk reduction elements were informed by the Flood Board's *Central Valley Flood Protection Plan*.

Promoting Farmland Conservation through Smart Growth (DP P1) – The staff has worked to ensure that updates of local general plans and Sustainable Communities Strategies developed by regional councils of governments are consistent with the Delta Plan, particularly with respect to farmland conservation and flood risk reduction.

Accomplishments of partner agencies:

Celebrating the Delta's Heritage (DP P1) – Building on proposals developed as part of the DPC's Feasibility Study for a Sacramento-San Joaquin Delta National Heritage Area (NHA), DPC staff has initiated a Delta Heritage Area Initiative to further protect, enhance, and sustain the unique values of the Delta. By advancing activities and projects that elevate and promote the Delta, this effort will help to protect and preserve the "Delta as place". Public education, historic preservation, tourism and recreation development, visitor amenities, and economic development activities, such as marketing and branding coordination, are all areas in which to promote the Delta's heritage and role in the national story. DPC staff is pursuing project opportunities to support a Delta Heritage Area in collaboration with the Delta Conservancy and others.

Photo courtesy DWR

Local residents observe the 2004 Jones Tract Levee break as it happens.

Maintaining Delta Levees – DWR allocated $53.7 million each in FY 2012-13 and FY 2013-14 for the DWR Delta Levees Maintenance Subventions Program. This is a cost-share program that provides technical and financial assistance to local levee maintaining agencies in the Sacramento - San Joaquin Delta for the maintenance and rehabilitation of eligible Delta levees. In each of the two fiscal years, 67 applications were received; 64 work agreements have been executed for FY 2013 and work agreements are being prepared for FY 2014.

Improving Emergency Response (RR R1) – Funded by Prop. 1E, these grants are provided through DWR's FloodSAFE Initiative, which is designed to improve flood management in the state. The objective of the **Delta Flood Emergency Response Grant** is to improve local agency flood emergency response in California and contribute to increased public safety. Six applications seeking a total of $8.8 million were received in the fall of 2013 for this competitive grant process; successful applications will be announced in early 2014. The **Delta Communications Equipment Grant** provided $5 million in 2013 to ensure State and local agencies have a robust regional communication system in the Delta for effective response to high water and flood emergencies. Funded by Prop. 84, the grant required projects to be consistent with California Office of Emergency Services' California Statewide Communications Interoperability Plan to improve communication between emergency response agencies on a regional basis.

Expanding a program first begun in 2007, the **Emergency Response Facility Improvement Project** provides DWR with the physical resources to quickly respond to and recover from catastrophic levee failures in the Delta. This project involves constructing and/or improving facilities for stockpiling and deploying rock, sand and other materials for making emergency repairs on breached or failing levees. Environmental documentation was completed and site acquisition begun in 2013 for three proposed locations.

Delta Independent Science Board members Brian Atwater, Chair-elect Jay Lund, and John Wiens.

Independent Science

The Delta Plan requires the use of best available science and adaptive management for covered actions to be consistent with the Delta Plan. In addition, it recommends development of a Delta Science Plan and continuation of the Independent Science Board and Council's Science Program mission to provide the best available scientific information to inform water and environmental decision-making in the Delta.

SeaGrant Fellow Emily Howe collects plant samples in Suisun Marsh.

Delta Science Plan (G R1) – Completed in October 2013, the Delta Science Plan provides direction for achieving an integrated, collaborative and transparent science of the Delta to enhance policy and management decisions. The Plan is transformative and uses principles that have proven successful in other Big Science programs – embracing emerging technologies and fostering open science communities. The science plan uses collaboration to build trust and acquire a shared body of scientific knowledge. It proposes new mechanisms for synthesis and communication that will enhance decision-making and reduce conflicts that hinder policy decisions. Vigorous and sustained investment in the Delta Science Plan will ensure that the responsible agencies have the knowledge, trust and collaboration necessary to achieve the coequal goals.

Sacramento-San Joaquin Flow Objectives (ER P1) – Organized panels of science experts for each of three workshops to inform the State Water Board's Phase 2 review of the Bay-Delta Plan. In conjunction with the Water Board, committed to focused workshops on four topics: predation, Delta outflow, interior Delta flows, and nutrient criteria. The predation workshop, organized jointly with the Department of Fish and Wildlife, was held in July 2013. Work is underway on the Delta outflows workshop scheduled for early February 2014.

Collaborative Science and Adaptive Management Program (CSAMP) – The Program was launched following a decision by the U.S. District

Court on April 9, 2013, issued for the completion revisions to salmon and delta smelt Biological Opinions. The Delta Science Program actively participated on the Collaborative Adaptive Management Team (CAMT) to help develop a robust science and adaptive management program that will inform both the implementation of the current Biological Opinions, including interim operations, and the development of revised Biological Opinions and participated in the preparation of a progress report to be submitted to the District Court in February 2014.

Bay-Delta Conservation Plan (ER R12) – The Science Program began the third and final phase of its independent science review of the BDCP Effects Analysis. The Effects Analysis, a critical component of the BDCP, is intended to provide the best scientific assessment of the likely effects of BDCP actions on the species of concern and the ecological process of the Bay-Delta system.

In addition, the Science Program conducted peer reviews of the 2013 implementation of the Long-Term Operations Biological Opinions affecting Delta operations and of the Fall Low Salinity Habitat Studies (FLaSH) and draft management plan for Adaptive Management of Fall Outflow and several seminars and workshops to better understand aquatic resources and to summarize and communicate available scientific information.

Water Quality

Because other state agencies have broad authority to protect and regulate water quality, the Delta Plan sets forth priority Delta-specific recommendations for those agencies and focuses on four core strategies where best available science shows the need for improved water quality to achieve the coequal goals:

- Require Delta-specific water quality protection
- Protect beneficial uses by managing salinity
- Improve drinking water quality
- Improve environmental water quality

Two notable accomplishments in 2013:

Central Valley Drinking Water Policy (WQ R4) – The Central Valley Regional Water Quality Control Board adopted a Basin Plan Amendment to establish a Drinking Water Policy (Policy) to protect source water quality on July 26, 2013. The Policy includes a narrative water quality objective for two pathogens, Cryptosporidium and Giardia, with associated implementation and monitoring provisions, as well as language addressing other constituents of potential concern to drinking water. Developed with input from several agencies including the Council, the Policy also outlines several monitoring objectives to address data needs in assessing pathogen source contributions and tracking, fate and transport, and organism viability.

Implement Delta Regional Monitoring Program (WQ R9) – The Central Valley Regional Water Quality Control Board formally launched the Delta Regional Monitoring Program and adopted a Resolution at its October 4 meeting to provide for participation in the program in lieu of individual monitoring efforts. The Water Boards have made it a priority to develop a Regional Monitoring Program (RMP) for the Delta that not only coordinates monitoring and assessment efforts in and around the Delta, but also regularly gathers, compiles, assesses, and reports data in support of the program. The Delta RMP, like all other regional monitoring efforts, will evolve over time, expanding the scope of issues being studied and the breadth of stakeholder involvement.

Sampling water quality in the Delta.

2013 By the Numbers

Water Years run from Oct. 1—Sept. 30

100% - 76% | 50% - 26% | 75% - 51% | 25% - 0%

Percent of Average

What Nature Delivered

46.2
95% of average
Northern Sierra

26.5
65% of average
Southern Sierra

Total Precipitation (inches)

42

Total Snow (% of average)

11.8
Million acre-feet; 65% of average
Sacramento River unimpaired runoff

3.6
Million acre-feet; 51% of average
San Joaquin River unimpaired runoff

What would have flowed through the Delta without human influences on the watershed

End-of-year Reservoir Storage

1.9
Million acre-feet
(70% of average)
Shasta Reservoir

Largest reservoir of
Federally-operated CVP

1.6
Million acre-feet
(75% of average)
Oroville Reservoir

Largest reservoir of
State-operated SWP

0.5
Million acre-feet
(53% of average)
San Luis Reservoir

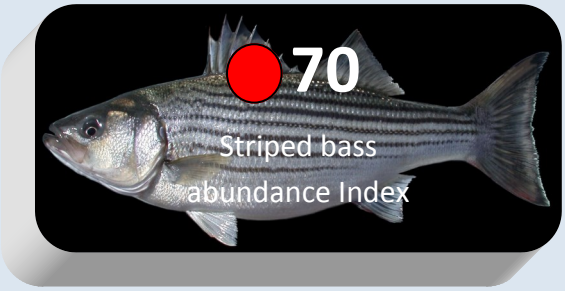
State/federal Reservoir
South of the Delta

Total Exports

2.2
Million acre-feet; 85% of average
State Water Project

1.8
Million acre-feet; 81% of average
(federal) Central Valley Project

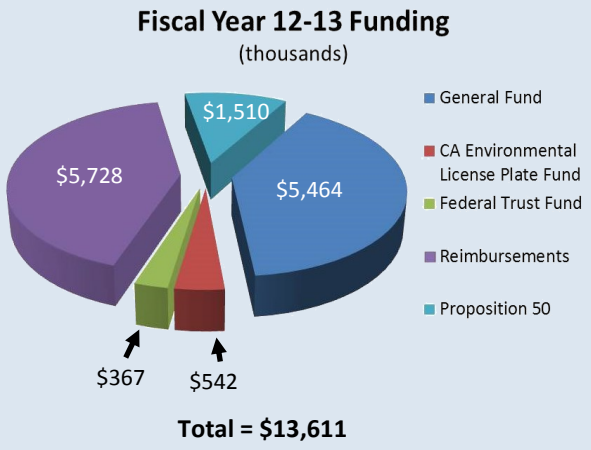
Species Indicators of Ecosystem Health

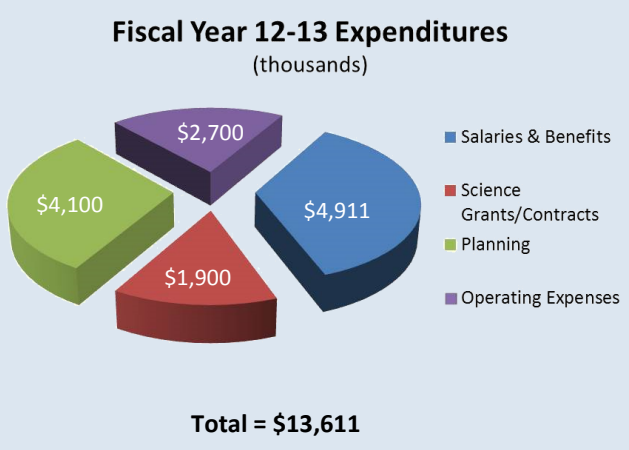


The Fall Midwater Trawl program began in 1967 and typically samples from San Pablo Bay through the Delta every month from September to December. This program was initiated to determine the relative abundance and distribution of striped bass in the estuary, but the data has also been used for other upper estuary pelagic species.

Indices do not represent actual numbers of fish. Instead, they are calculated using catch data from 100 "index" stations grouped into 17 regional "areas". Fall midwater trawl indices have historically ranged in the thousands for striped bass and delta smelt, tens of thousands for longfin smelt, and hundreds for the Sacramento splittail.

Delta Stewardship Council





DELTA STEWARDSHIP COUNCIL
A California State Agency

980 Ninth Street, Suite 1500, Sacramento, California 95814 **www.deltacouncil.ca.gov**